Central line associated blood stream infection Rate Reduction Strategy (CRRS)

The General Directorate of Infection Control Launched the CLABSI Rate Reduction Strategy (CRRS) with the goal of reduction of the National CLABSI Rate to (0.9 per 1000 central line days) or less in all MOH critical care units.

Central Venous Catheter (CVC)

What is Central Venous Catheter (CVC) or Central Line?

An intravascular catheter that terminates at or close to the heart, OR in one of the great vessels that is used for infusion, withdrawal of blood, or hemodynamic monitoring.

Are there any risks related to central line use?

YES. Improper insertion or maintenance of central line can lead to Central line associated blood stream infection (CLABSI)

How can I prevent the incidence of CLABSI?

Through compliance to CLABSI prevention bundles of care.

What is a central line-associated bloodstream infection?

A central line-associated bloodstream infection (CLABSI) is defined as a Laboratory Confirmed Bloodstream Infection (LCBI) that is not secondary to an infection at another body site with a central line that has been in place for more than two consecutive calendar days (on or after CL day 3).





What are the Risk Factors for CLABSI?

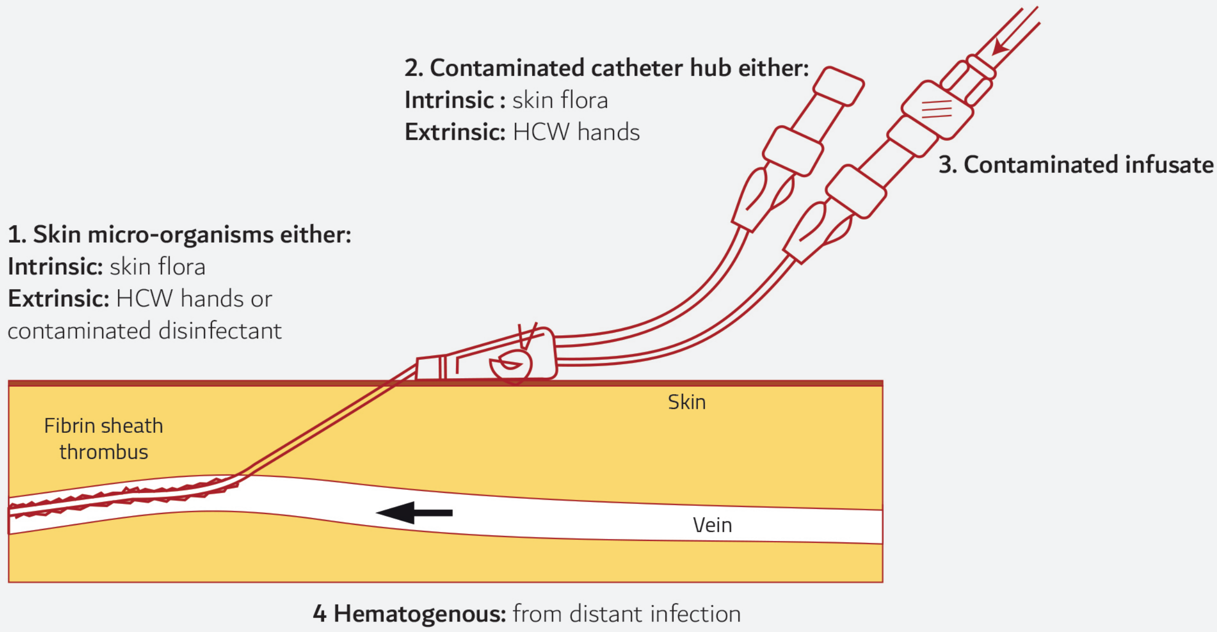
Intrinsic risk factors (Non-Modifiable)

- Severity of underlying illnesses
- Immunosuppression
- Prolonged hospitalization before CENTRAL LINE insertion
- Total parenteral nutrition

Extrinsic risk factors (Potentially Modifiable)

- Unskilled physician who inserts the central line
- Heavy microbial colonization at insertion site
- Lack of maximal sterile barriers for CVC insertion
- Prolonged duration of catheterization
- Femoral or internal jugular access sites
- Excessive device manipulation
- Multiple central venous catheters (CVCs) or Multi-lumens Catheter
- Emergency insertion

Routes for Contamination of Central Venous Catheters with Microorganisms



Micro-organisms of CLABSI

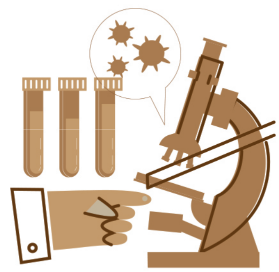
Most of the microorganisms that cause intravascular device-related infections are from the patient's own skin flora; however, contamination of a device hub is also a source of infection. Pathogen susceptibilities and distribution vary widely by region and over time.

Burden of CLABSI on Health care System



up to 10%

of hospitalized patients acquire health care-associated infections (HAIs) during their hospital stay.



%10

of HAIs are bloodstream infections (BSIs) and mainly in intensive care units.



Up to 60.000 SR

The estimated cost of CLABSI per patient.



up to 23 days

Extra length of stay due to CLABSI



up to 25%

attributable mortality due to CLABSI

65%–70%

of CLABSIs are preventable by implementing CLABSI Prevention bundles

“CLABSI Prevention Bundle”

What is Bundle?

A care bundle is defined as the implementation of a set of EVIDENCE-BASED PRACTICES that when implemented TOGETHER provide better outcomes than when implemented individually.

What are the Components of CLABSI insertion Bundle?

- Hand Hygiene
- Chlorhexidine skin antisepsis
- Maximal barrier precautions
- Optimal catheter site selection
- Ultrasound guidance with sterile probe cover

Compliance to CLABSI insertion bundle of care has proven to be significantly associated with reduction of blood stream infections rates

Components of Central line maintenance bundle



Hand hygiene before and after any catheter access manipulation.



Maintain aseptic technique during care and maintenance of intravascular catheters.



Daily review of the need for catheter with removal of the lines as soon as they are no longer necessary .



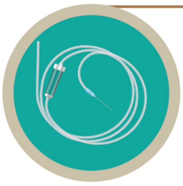
Proper dressing choice:

- Use transparent semipermeable dressing.
- Use gauze only if the site is bleeding or oozing.



Proper frequency of dressing change:

- Replace transparent dressing every 7 days.
- Replace gauze dressing every 48 hours.
- Replace immediately any dressing that is soiled, dampened, or loosened.



Proper replacement of administration sets:

- Replace the administration sets no more frequently than 96-hour intervals, but at least every 7 days.
- If the administration set is used for administration of blood, blood products or fat emulsions, replace within 24 hours.

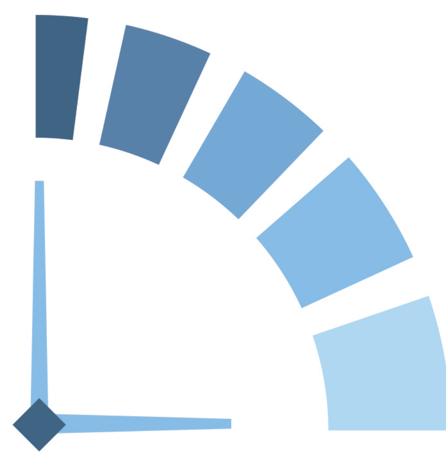
Do not forget to Scrub the Hub

The catheter hub can carry organisms which can lead to catheter associated blood stream infections.

Scrub the hub



15 Seconds



Scrubbing the access port with an appropriate antiseptic (chlorhexidine, or 70% alcohol) for 15 seconds prior to each catheter access and allow to dry.

“Successful Interventions to reduce CLABSI rates”



Competency
Designated Competent staff for Central Venous Catheter (CVCs) insertion& maintenance

Education
Staff training on central line insertion and maintenance.





Authority
Stop central line catheter insertion if best practices were not followed

Compliance with the CLABSI Prevention bundles



Feedback to staff regarding CLABSI rates



Standardization

- Standardized central line kits with all components required to comply with infection prevention practices.
- Catheter insertion checklist.

Contact us if you have any queries about the CRRS via the email: CRRS.GDIPC@moh.gov.sa